

WHAT IS CLAIMED IS:

1. A single-substrate-processing apparatus for performing a semiconductor process, comprising:

an airtight process chamber;

5 a worktable configured to support a target substrate within the process chamber, and having an insulating surface;

a supply section configured to supply a process gas into the process chamber;

10 an exhaust section configured to vacuum-exhaust the process chamber; and

a conduction structure configured to conduct static electricity generated on the worktable to a grounded portion outside the process chamber, the
15 conduction structure having a first conductive film formed on the insulating surface of the worktable.

2. The apparatus according to claim 1, wherein the first conductive film consists essentially of a material selected from the group consisting of silicon
20 carbide and titanium oxide.

3. The apparatus according to claim 1, wherein the first conductive film is a film formed by means of CVD.

4. The apparatus according to claim 1, wherein
25 the first conductive film is a film formed by means of thermal spraying.

5. The apparatus according to claim 1, wherein

the first conductive film has a thickness of from 20 to 100 μm .

5 6. The apparatus according to claim 1, further comprising a pedestal standing upright in the process chamber and supporting the worktable, wherein the pedestal has an insulating surface, and the conduction structure has a second conductive film formed on the insulating surface of the pedestal and electrically connected to the first conductive film.

10 7. The apparatus according to claim 6, wherein the second conductive film consists of a material substantially the same as that of the first conductive film, and formed integrally with the first conductive film.

15 8. The apparatus according to claim 6, wherein the conduction structure is arranged such that a conductive portion of a casing of the process chamber is electrically connected to the second conductive film, and is grounded.

20 9. The apparatus according to claim 6, wherein the pedestal is attached to the process chamber by a fixing member, which penetrates a casing of the process chamber, and the conduction structure is arranged such that a conductive portion of the fixing member is
25 electrically connected to the second conductive film, and is grounded.

10. The apparatus according to claim 9, further

comprising a bias section configured to selectively apply a positive electrical potential to the conductive portion of the fixing member.

5 11. The apparatus according to claim 10, wherein the bias section comprises a switch configured to switch between a state where the conductive portion of the fixing member is grounded and a state where the conductive portion of the fixing member is connected to the bias section.

10 12. The apparatus according to claim 11, further comprising:

 a window formed in a casing of the process chamber and facing the worktable; and

15 a UV lamp disposed outside the process chamber and facing the window, the UV lamp being configured to radiate UV rays onto the process gas above the worktable to activate the process gas.

20 13. The apparatus according to claim 12, wherein the process gas contains an oxidizing gas for subjecting the target substrate to oxidation.

 14. The apparatus according to claim 13, wherein the oxidizing gas consists essentially of ozone gas.

25 15. A single-substrate-processing apparatus for performing oxidation of a semiconductor process, comprising:

 an airtight process chamber;

 a worktable configured to support a target

substrate within the process chamber, and having an insulating surface;

a pedestal standing upright in the process chamber, supporting the worktable, and having an insulating surface;

a supply section configured to supply a process gas containing an oxidizing gas into the process chamber;

an exhaust section configured to vacuum-exhaust the process chamber;

a window formed in a casing of the process chamber and facing the worktable;

a UV lamp disposed outside the process chamber and facing the window, the UV lamp being configured to radiate UV rays onto the oxidizing gas above the worktable to activate the oxidizing gas; and

a conduction structure configured to conduct static electricity generated on the worktable to a grounded portion outside the process chamber, the conduction structure having a first conductive film formed on the insulating surface of the worktable, and a second conductive film formed on the insulating surface of the pedestal and electrically connected to the first conductive film.

16. The apparatus according to claim 15, wherein the first and second conductive films consist essentially of a material selected from the group

consisting of silicon carbide and titanium oxide.

17. The apparatus according to claim 15, wherein the first and second conductive films are films formed by means of CVD.

5 18. The apparatus according to claim 15, wherein the conduction structure is arranged such that a conductive portion of a casing of the process chamber is electrically connected to the second conductive film, and is grounded.

10 19. The apparatus according to claim 15, wherein the pedestal is attached to the process chamber by a fixing member, which penetrates a casing of the process chamber, and the conduction structure is arranged such that a conductive portion of the fixing member is
15 electrically connected to the second conductive film, and is grounded.

 20. The apparatus according to claim 19, further comprising a bias section configured to selectively apply a positive electrical potential to the conductive
20 portion of the fixing member.

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